

Mumbai University

May - 2018

**B.Sc. IT: SEMESTER – V**  
**(QUESTION PAPER)**  
**[IDOL – Old Course]**

ELECTIVE – I

EMBEDDED SYSTEMS  
AND  
PROGRAMMING

Time: 3 HoursTotal Marks: 100

**N.B.:** (1) Question No. 1 is Compulsory.  
 (2) Attempt any four from Question Nos. 2 to 7.  
 (3) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.  
 (4) Answer To The Same Question Must Be Written Together.  
 (5) Number To The Right Indicates Marks.  
 (6) Draw Neat Labeled Diagrams Wherever Necessary.

**Q.1 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Explain the blinking LED program in detail. (5)  
 (B) Define build process and explain steps involved in it. (5)  
 (C) Why is C The Least Common Denominator in embedded systems? (5)  
 (D) Explain why "hello world" program is a difficult program to begin with in learning to program embedded systems. (5)

**Q.2 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Explain the concept of Remote Debugger. (8)  
 (B) Explain in short Memory Map of Processor. (6)  
 (C) Explain Common Memory problems in Embedded Systems Memory. (6)

**Q.3 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Why do we need Memory Testing, what are different types of Testing, is it necessary to perform this in sequence, If yes then what is sequence and why? (8)  
 (B) Explain the following Address Bus Test. (6)  
 (C) Explain the problem of Flash Memory and concept of Flash Driver. (6)

**Q.4 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Explain Scheduling Point, Idle Task and Ready List with respect to embedded operating system. (8)  
 (B) Explain the concept of Watchdog Driver. (6)  
 (C) Explain the concept of Context Switch. (6)

**Q.5 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Give brief explanation of different types of Memory Devices. (8)  
 (B) Explain the concept of Scheduler. (6)  
 (C) Explain how code is downloaded in the ROM of Embedded Systems. (6)

**Q.6 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Write Short note – Real Time Character of an Operating System & Embedded IDE. (8)  
 (B) Explain Direct Memory Access. (6)  
 (C) Explain in short Interrupt Map of Processor. (6)

**Q.7 ATTEMPT THE FOLLOWING QUESTIONS: (20 MARKS)**

(A) Explain Control and Status Registers. (8)  
 (B) Explain Simulators, Logic analyzer and Oscilloscope. (6)  
 (C) Explain variations in Embedded Systems. (6)